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SOME SPECIES OF COLASPIS FROM THE BRUNNEA CONFUSION (COLEOPTERA : CHRYSOMELIDAE).

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The following considerations and descriptions appear to be required to supply a name for use in recording economic injury to needles of longleaf pine in Louisiana.

If species exist as natural units which can be classified and reidentified when later encountered, they must be thought of as self-perpetuating populations composed of limitless numbers of individuals which differ more or less among themselves but which, as a whole, hybridize rarely or not at all with individuals of other species. The barrier preventing or minimizing hybridization may be any one, or a combination, of seasonal, instinctive, chemical, or structural factors, or may lie in what might loosely be termed incompatability (protoplasm, chrosomosomes, etc.). But since taxonomy presumes to define species on the basis of so-called "characters" visible in dried samples, a classification has been erected upon this basis and many, working with keys, descriptions, and dry specimens, habitually think of species only by name and by the characters given in publications.

Because of these tendencies the taxonomic literature on the pale and the yellow and bronzed North American forms of *Colaspis* has been confused under the name *Colaspis brunnea*. It is our misfortune that Fabricius applied the same specific name (*brunnea*) to each of two very similar but literally antipodal species, and as both species were for more than 30 years included in the same genus (*Colaspis*) there is a nice problem of homonyms to be worked out. At present it appears (from correspondence with G. J. Arrow in 1926) that the New Zealand pest known as "the bronzed beetle" and recorded under the technical name *Eucolaspis brunnea* (Fab.) is some species other than, but somewhat resembling, the type of *Chrysomela brunnea* Fabricius 1792 (which had been included in *Colaspis* from 1846 to 1881), while our North American confusion under the name *Colaspis brunnea* Fab. 1801 (based upon *Galleruca brunnea* Fabricius 1798) is further complicated by introduction of the common name "bronzed beetle," apparently under a misconception that *Eucolaspis brunnea* (Fab.) in New Zealand and *Colaspis brunnea* Fab. in the United States are the same species.

The last taxonomic paper on our complex (Schaeffer 1934) attempts to distinguish several species and varieties as distinct from *brunnea*, which even thus restricted is left as an insoluble complex, but the material used was scanty and only form, color, and surface sculpture were considered. Solution of the problem can not be attained on such lines. We need cooperative assembling of well preserved sets displaying the variation of both sexes within carefully chosen broods observed in detail in nature. Single cabinet specimens, miscellaneous sweepings from mixed vegetation, or other uncertain data, while supplying informative leads to the observer, are too confusing in an analysis of creditable data to deserve attention. The best samples would be lots of perhaps 50 (males and females) taken

from a brood attacking a particular recorded host plant. If attacks on other host plants are observed, each such sample should be kept separate. From such lots, killed and kept in fluid preservative, reference samples may be selected, displayed, dehydrated, and mounted with appropriate label. The type series of the species below described as *pini* is such a sample comprising 117 specimens and supplemented by corroborative lots with data as given below. Field observers should be careful, however, for at almost any point in the area south and west of New York various combinations of two or more species living in mixed populations may be encountered and field observations should be so made that records and samples may afterwards be clearly understood.

Among the Schaeffer types now before me are four of the specimens mentioned with his description of *Colaspis flavocostata*. The holotype ♂ and allotype ♀ are from Chipola Lake, Fla., Apr. 4, 1927, Leonard, and male and female paratypes are from Greenwood Lake, N. J., July 29, 1930, beaten from pitch pine by Fred M. Schott. These appeared conspecific with the pine-attacking specimens from Louisiana, but for more satisfactory evidence the holotype aedeagus was displayed, and found to be of the shape normal to the *brunnea-costipennis* group of forms and very different from that of the pine-feeding southern samples. The male paratype was then dissected, yielding another surprise in that, while its aedeagus is similar to that of the Louisiana form, the differences are such that the forms can not be considered identical. Both of these are probably peculiar to pine and the similarity in genitalic structure may be of considerable significance. Search for geographically intermediate males failed; and the specimens from Maryland to South Carolina, being all females, are left unidentified pending study of adequate samples from this region. Single males from Georgia and central Florida are also inadequate, being too poor or too diverse to be included without other sustaining evidence.

Colaspis pini, new species.

Resembles *Colaspis brunnea* Fab. (as commonly understood), but is larger, longitudinally less convex, of a brownish instead of light yellow color, and is more densely punctate on the pronotum and more strongly costate on the elytral intervals. Externally almost identical with *Colaspis flavocostata* Schaeffer but differs in shape of aedeagus.

Elongate oval, convex, rusty yellow or brown with usually imperceptible greenish reflections; strongly rather densely punctured, the elytral punctures slightly larger, less approximate, and subserial in position between the pale yellow costae.

Length 4.5 to 5.7 mm.; width humeri 2.3 to 2.7 mm.

Habitat: Attacking pine needles in Southern States.

Male: Antennae extending to beyond hind coxae, pale yellow, the 7th, 10th, and 11th joints sometimes darker; prosternal length twice the inter-coxal width; mesosternum wider than long; last sternite shining, transversely very feebly convex before apex, without tubercle but with translucent darker subapical transverse area or pair of spots where sclerite appears to thicken on its internal surface. Aedeagus elongate subparallel, evenly curved, very feebly wider at apical third, the sides thence apically straight and very slightly convergent to subapical subangulation and ending at the very feebly produced and elevated tip in a slightly obtuse angle; lateral orificial plates narrow, separated by a median membranous area wider than either place.

Type locality.—Elizabeth, Louisiana.

Type and paratypes, U. S. N. M. Cat. No. 51940.

The male holotype is selected from a series of 117 specimens collected on longleaf pine at Elizabeth, La., July 1, 1924 by R. M. Hollowell and then doubtfully identified as *Colaspis costipennis*. Other samples included as paratypes are as follows: 8 specimens feeding on pine, Ponchatoula, La., June 24, 1925, C. E. Smith and N. Allen; 7 specimens feeding on pine, Covington, La., June 24, 1925, Smith and Allen; 4 specimens, pine, Ocean Springs, Miss., June 23, 1925, H. Gladney; 16 specimens on pine, Kiln, Miss., Aug. 11, 1926, R. C. Nicaise; 5 specimens on *Pinus taeda*, Woodworth, La., June 12, 1928, N. D. Canterbury; 9 specimens injuring tops of slash pine, 5 miles east of Logtown, Miss., July 16, 1932, H. W. Givens; 6 specimens on pine, 5 miles north of Slidell, La., July 10, 1934, T. E. Snyder.

Colaspis pini schotti, new subspecies.

Colaspis flavocostata Schaeffer 1934, part.

Size, habitus, form, sculpture, and color as in *flavocostata* but structure of aedeagus similar to that of *pini*, from which the following comparison may distinguish it. Color darker, the rusty areas reduced and the aeneous reflections intensified, and the elytral costae less prominent and narrower. *Male:* Antennae shorter, attaining the hind coxae, only the subbasal joints rusty red; prosternal length greater than twice the intercoxal width; mesosternal plate as long as wide; last sternite with scattered pubescence and punctures more developed; aedeagus shorter, more strongly curved, with apex slightly more obtusely angulate and with lateral orificial plates broader and almost approximate.

Type data.—"Beating pitch pine, Greenwood Lake, New Jersey, July 29, 1930, F. M. Schott."

The holotype male and allotype are in the Schaeffer collection as paratypes of *C. flavocostata* Schaeff., being the specimens mentioned in his footnote addition to his description of that species. The allotype is more translucent ferruginous, perhaps due to decomposition of its contained fatty material.

Colaspis flavocostata Schaeffer 1934 (sens. str.)

Type data.—Chipola Lake, Florida, Apr. 9, 1927, M. D. Leonard. Holotype male and allotype female in Schaeffer collection.

The type specimens of *flavocostata* became available after the Louisiana samples had been studied and all three species were considered identical until their dissection exposed the diversity of male genitalic structure. The aedeagus of the holotype is of the form usual in the *brunnea-costipennis* series, i. e., short, broad, strongly bent, with apical portion obtuse before the subulately produced tip; and the last sternite bears a strong, median tubercle. The antennae are unusually long and slender, three or four apical joints extending beyond the hind coxae.

Colaspis brunnea auct. and **Eucolaspis brunnea** auct.

The confusion under these names can only be worse confounded by premature taxonomic work under conditions now believed to exist. The slow cooperative assembling of good samples, such as are discussed in the introductory remarks, will require much time, and until our several forms are understood, slight credence might be accorded to an opinion from an examination of the Fabrician type of *Galleruca brunnea*, if it is preserved. The type locality record of the latter, "Habitat in America. Dom. Hybner," should be amplified by any collateral evidence on Hübner's sources of specimens. It is here pertinent, however, to show by a condensed chronological table some of the reasons why the "bronzed beetle" of New Zealand and our native American complex of forms should not have been confused in economic considerations. The more important references supposed to deal with these two Fabrician specific names (*brunnea*), neither of which appears in the "Munich" catalogue, and their long inclusion in the genus *Colaspis*, as well as the gross confusion of our American records under the name of the New Zealand "Bronzed beetle" are shown as follows:

Present name Eucolaspis brunnea (F). Habitat—New Zealand	Present name Colaspis brunnea (F.) Habitat—North America
Chrysomela brunnea Fab. 1792	
	Galleruca brunnea Fab. 1798
Chrysomela brunnea Fab. 1801	Colaspis brunnea Fab. 1801
	Colaspis brunnea Oliv. 1808
Colaspis brunnea White 1846	
	Colaspis brunnea Crotch 1873
Colaspis brunnea Broun 1880	
Dematochroma brunnea Baly 1881	
Dematochroma brunneum Lef. 1885	Colaspis suilla Lef. 1885
Eucolaspis brunnea Sharp 1886	(not Fab. 1801)
	Colaspis brunnea Horn 1892

Eucolaspis brunnea Broun 1893	
Eucolaspis brunnea Clav. 1914	Colaspis brunnea Clav. 1914
	Colaspis brunnea RAE 1921
Eucolaspis brunnea RAE 1922	
	Eucolaspis (Colaspis) brunnea RAE 1924
	Colaspis flava RAE 1924
Eucolaspis brunnea RAE 1927	Eucolaspis (Colaspis) brunnea RAE 1927

(Usage of 1927 continued 1928 to 1936 in RAE omitted here.)

The practice in the last twelve volumes of Review of Applied Entomology (abbreviated to RAE on the last 6 lines) of not only indexing the American citations under the name of the very distinct Zealandian genus but of making their abstracts of the American *Colaspis brunnea* records read "*Eucolaspis*" has doubtless confused compilers of published data both in America and in New Zealand. Perhaps paralleling the variety of habits and forms of American *Colaspis*, this similar but unrelated genus is said to injure foliage of pine (Clark, 1932) as well as fruit trees in New Zealand; but the individual, local, and interspecific variation appears so great that identification of the several species seems to be somewhat uncertain.

Certainly the International Code requires replacement of the specific homonym *brunnea* F. 1798 by a substitute name, but who wishes to propose one for a species whose identity may not be known for a very long time and among the listed subspecific or synonymic names of which no one can choose since actual specific identities or differences are unknown and can not be determined without a very expensive research? It therefore appears best to continue indexing data on those of our various pale American species which can not be otherwise identified under the name *Colaspis brunnea* auct. and proceed to assemble samples and other data which may lead to a solution of this problem.

The simple author-date citations used in the above summary refer to the following works:

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1798 Fabricius . . . . Ent. Syst. Supp., p. 94.
1801 Fabricius . . . . Syst. El., I, p. 416, p. 439.
1808 Olivier . . . . . Ent., vol. 6, p. 891.
1846 White . . . . . Voy. Erebus and Terror, Ins., p. 23.
1873 Crotch . . . . Proc. Acad. Nat. Sci. Phila., vol. 25, p. 44.
1880 Broun . . . . . Manual N. Zealand Coleop., pt. 1, p. 622.
1881 Baly . . . . . Trans. Ent. Soc. London, 1881, p. 502.
1885 Lefevre . . . . Eumolp. Catal., p. 33, p. 48.

1886 Sharp . . . . .Trans. Roy. Dublin Soc. (2), vol. 3, p. 445.
1892 Horn . . . . .Trans. Amer. Ent. Soc., vol. 19, p. 223.
1893 Broun . . . . .Manual N. Zealand Coleop., pt. 5, p. 1305.
1914 Clavareau . . .Coleop. Catal. Junk, pt. 59, p. 22, p. 28.
1921 et seq. RAE . .Rev. Appl. Ent. A (see indices).
1932 Clark . . . . .N. Zealand Journ. Sci. Tech., vol. 13, p. 235–243.
1934 Schaeffer . . .Journ. N. Y. Ent. Soc., vol. 41, p. 470.

NOMENCLATURE OF LISTRODERES OBLIQUUS KLUG (THE VEGETABLE WEEVIL) (COLEOPTERA : CURCULIONIDAE).

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Originally described from Brazil, the vegetable weevil has been widely dispersed by commerce, and is now established in several countries. At different times different technical names have been applied to the species; at present, it is called *Listroderes obliquus* Gyllenhal by most North American writers, and *Listroderes costirostris* Schoenherr by writers of other countries. Its correct name appears to be *Listroderes obliquus* Klug, though this conclusion, being based largely on published statements, may be modified by future studies of the types of Schoenherr, Klug, and Gyllenhal (presumably in European museums) or by biological investigations of *costirostris* in its native habitat.

The names chiefly involved are: *Listroderes costirostris* Schoen. 1826, proposed for a species from Rio de Janeiro; *L. obliquus* Klug 1829, for a species from southern Brazil; and *L. obliquus* Gyll. 1834, for a new variety of *costirostris* from southern Brazil. In describing *obliquus*, both Klug and Gyllenhal cite "*obliquus* Dej. in litt.," and this citation, in the absence of contrary evidence and pending examination of the actual types, is here considered to establish *obliquus* Gyll. as a synonym of *obliquus* Klug.

The exact relation of *obliquus* Klug to *costirostris* Schoen. is problematical. No structural difference between them has ever been reported, though Mississippi, U. S. A., specimens sent by H. S. Barber to G. A. K. Marshall in 1925 were said to be *obliquus* Gyll., but not *costirostris* Schoen. as identified in the British Museum collection. The only other evidence known to me indicating the distinctness of *obliquus* and *costirostris* is the allusion to the male in Schoenherr's original description of *costirostris;* whereas *obliquus*, as far as known, is strictly parthenogenetic. No male of *obliquus* has been reported in the literature, nor was this sex represented among 1,186 Mississippi specimens which I dissected recently. This difference in reproductive nature is obscured or entirely lost sight of if